Experimental Feed Study

On January 15, 1984, hatchery personnel began a feed study to compare the new moist pellet by Rangen with the OMP #4 from Bio-Products. We were primarily concerned with the following growth-related parameters: fish growth, increase in lengt and weight; condition factor, relationship of height and width to length; conversion, grams of food fed per gram of fish flesh gained; and mortality, total loss from January 15 through May 1, 1984.

Methods

Two separate rearing troughs (16.6 cu. Ft. each) received 3 lbs. of Westslope Cutthroat Trout. Inflow to both rearing units was set at 7 gpm; oxygen content in both troughs was 9-10 ppm.

The fish were sampled at the beginning of the study. Four different weight samples (28.35 grams per sample) were taken and averaged to get an average weight of fish in grams. A total of 51 fish (from the combined 4 samples) were measured to get an average length of fish in millimeters. Four subsequent inventories were taken on the first day of each month to document growth and condition information.

Feeding rates were established using the Oregon OMP Chart. After the first day, we used the hatchery constant method for determining amount of feed to use. Mortalities were documented on a daily basis.

Results and discussion

Growth (length and weight increase) was similar in both groups during the study period. The fish fed the Rangen diet maintained a slight length increase during the study, while the control group (Bio-Products fed) showed a similar weight advantage (Table 1). Given the differences in length and weight, we would expect to see the slightly greater condition factor (C) for the fish in the control group.

Table 1. Growth and related information for Rangen's and Bio-Product's study groups.

Date	Sample Group	Average Length	Length Increase	Average Weight	Weight *Increase	Condition Factor	Feed Fed	Conversion	Mortality
1/15	Control	50.33		1.19grams		3.37			
	Rangen	ml. 49.86		1.18		3.44			
2/1	Control	54.07	3.74	1.33	158.9	3.04	204.02	1.28	1
	Rangen	54.39	4.53	1.27	102.87	2.85	204.02	1.98	2
3/1	Control	53.09	-.98	1.30	-34.02	3.14	569.6		1
	Rangen	53.25	-1.14	1.29	22.78	3.08	547.2		4
4/1	Control	55.00	1.91	1.49	214.89	3.24	275.0	1.28	2
	Rangen	56.49	3.24	1.49	227.20	2.99	275.0	1.21	3
5/1	Control	60.92	5.92	1.86	416.62	2.97	342.56	.82	5
	Rangen	61.92	5.43	1.86	416.99	2.83	334.15	.80	9
Total	Control		10.59		790.41		1,391.2	1.76	9
	Rangen		12.06		769.84		1,360.4	1.77	18

*Represents the weight increase for the entire group.

The conversions for both groups were very similar; however, the conversion for the test group (Rangen) was Significantly larger after the first 5 days (Table 1). This might indicate an initial adjustment time was required before the test group fish fully adjusted to the new feed.

Although mortality in both groups was very low, the test group experienced twice the number the control group incurred. This particular area is the only one in which a clear-cut differential exist between the two groups tested. I don't believe a preliminary finding from such a small group is that meaningful, however, we'll want to watch this particular area in future studies.

I think it's only fair to point out short-comings of this particular experiment. To begin with, it was hastily put together and was undertaken at a bad time: during January through March, we experience our coldest temperatures and poorest feeding behavior from the fish. Also, I ponded the fish at extremely low densities (D.I. of .09). Cutthroat apparently feel more secure at higher loading densities and definitely feed better at such.

Given these limitations, I still feel the study was worthwhile. The new Rangen feed is apparently very comparable to the Bio-Products OMP we are now using. The cost is exceedingly high at present but should be coming down in the near future. Also, a semi-moist feed that doesn't need refrigerated could be used in demand feeders in the future. Using demand feeders on Westslope Cutthroat may be a technique Clark Fork Personnel may want to try.

In conclusion, the study indicates the new Rangen feed is comparable to Bio-Products. Another experiment under more favorable conditions is in order.

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